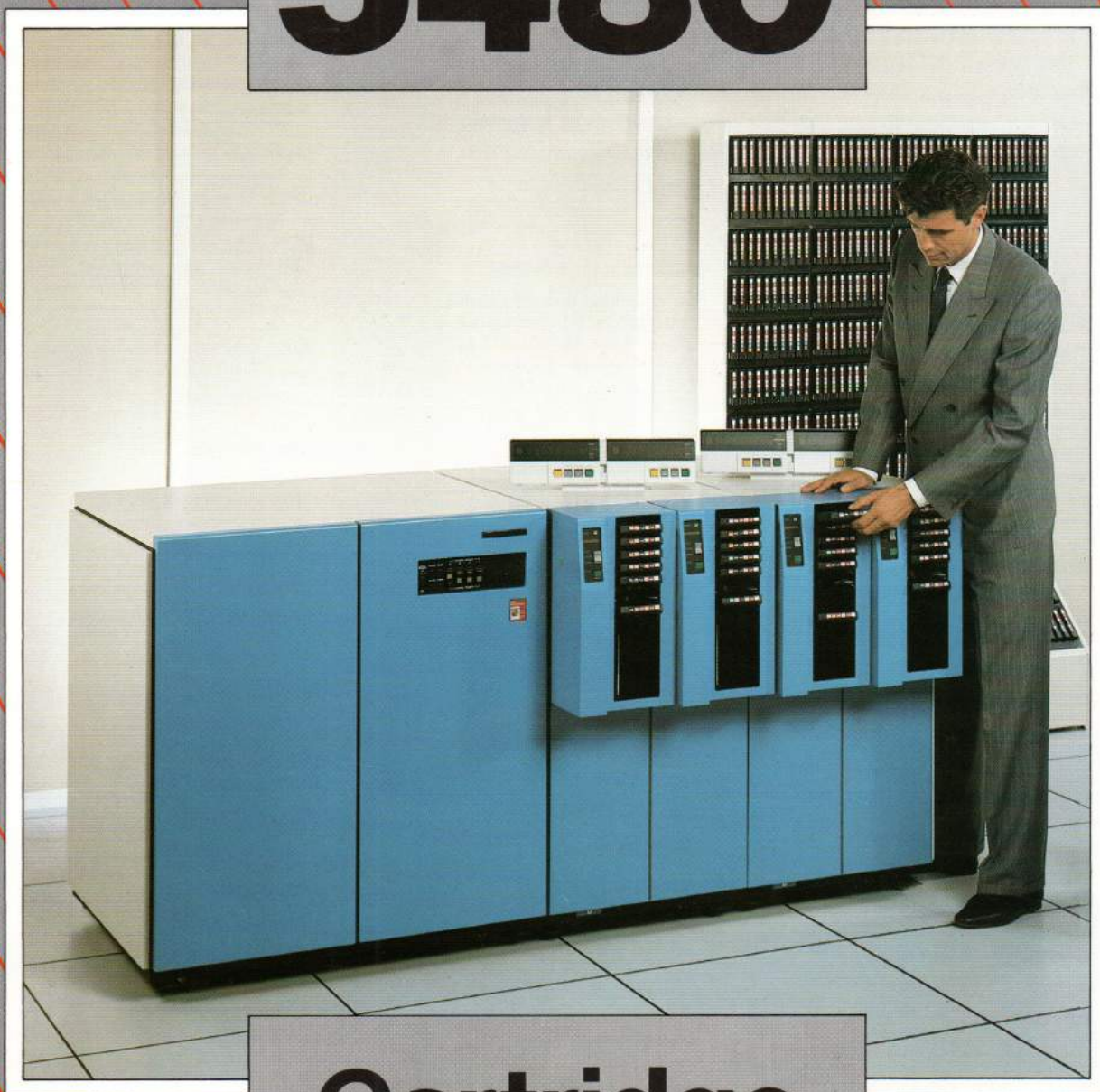




MEMOREX TELEX

5480



Cartridge tape subsystem

Memorex Telex 5480 cartridge tape subsystem

The Memorex Telex 5480 cartridge tape subsystem is a uniquely featured alternative to the IBM 3480.

Progressing from the technology and success of Memorex Telex reel to reel tape systems, Memorex Telex 5480 subsystems set the highest standards for reliability, ease of operation and maintainability.

Performance demands

There have been virtually no enhancements in tape systems since 1973, when IBM announced the GCR recording method on the 3420, until the IBM 3480 was announced some 11 years later. During this same period the industry has seen major improvements made to disk subsystems, and powerful new IBM processors offering faster data transfer rates.

Disk back-up, data archival and migration are major contributors to today's tape processing workload and data storage requirements continue to grow at dramatic rates (compound annual growth rate 45%). This fact, coupled with limitations on tape processing performance for batch applications, has prompted users to demand alternative solutions to the tape performance problem.

Other user needs

The explosion in data storage and processing requirements has put pressure on user resources and emphasized the need for other improvements.

- In the media to improve data integrity.
- In the equipment to improve availability and trouble-free operation.

- In environmental demands including floorspace and power requirements.

Memorex Telex solutions

Memorex Telex took the first step towards meeting these user needs with the 6520 tape cache processor. The 5480 cartridge tape subsystem is the logical step forward from there to a new level of technology addressing all these market requirements.

General description

The 5480 cartridge tape subsystem is command and format compatible with the IBM 3480 A22 controller and B22 cartridge tape unit.

The 5481 control unit can support up to four 5480 cartridge tape drive units, each of which contain two cartridge tape transports.

Two 5481 control units can be linked by a cross call feature to provide a maximum configuration of 2 x 16 – two controllers supporting 16 cartridge tape transports. The 5481 control unit is a buffered, multiple microprocessor controlled device with up to eight channels for greater CPU connectivity.

The 5480 cartridge tape unit is a compact dual transport device with several unique features offering advantages over competitive units.

Memorex Telex is already an established supplier of high quality 3480 cartridge tape media and accessories and has a worldwide team of customer engineering and systems consultants ready to provide their experience in the tasks of installation planning and conversion from open-reel tape to cartridge tape.

Compatibility

The Memorex Telex 5480 cartridge tape subsystem is fully compatible with the IBM 3480 and can be attached in the standard environments that support the IBM 3480.

Code compatibility and full function mode are supported under various operating systems including MVS/XA and MVS/SP at the appropriate release levels.

Standard channel connection is to any IBM CPU supporting up to 4.5 megabytes per second data streaming channels. Lower speed channel connection alternatives are also available.

Memorex Telex cartridges, and all other leading brands which meet the necessary standard, can be used on the 5480 cartridge tape drives.

Performance

The 5481 control unit has two independent microprocessors. One controls data flow across the channel to the host CPU, and the other controls data transfer to the 5480 cartridge tape drives.

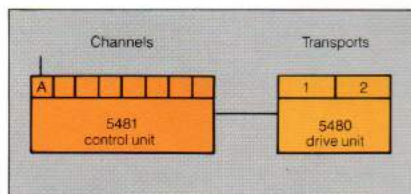
A 2-megabyte buffer in the 5481 control unit provides the amount of space necessary for multi-record buffering, even when dealing with large block sizes.

A combination of large block sizes, the extra buffer space and the power of independent microprocessors provides the most effective basis for maximum data throughput.

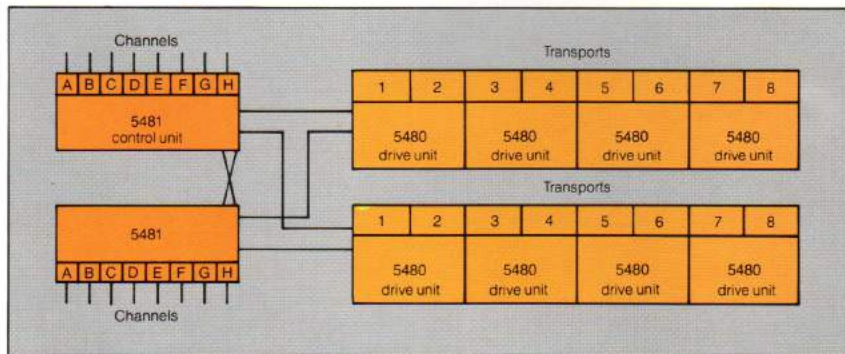
High reliability

Reliability is designed into all components of the 5480 cartridge tape subsystem and is highlighted by features such as:-

- Simple microprocessor-based control of tape motion with no vacuum columns or capstan.
- Use of LSI components throughout the control unit and drive units, reducing component count and heat output.
- 18-track thin film head with minimal contact with the media. In conjunction with the adaptive cross parity (AXP) data encoding on the media, data integrity is at a higher level than with conventional open-reel tape. This means that longer blocklengths can be supported reliably, leading to improved throughput.
- Automatic error detection and correction by the 5481 control unit reducing the overhead of retries in the CPU.
- Advanced power supply design with air pressure feedback to adjust frequency. This reduces noise and power consumption.



Minimum configuration



Maximum configuration

Ease of operation

The 5480 cartridge tape subsystem both simplifies and reduces the operator's tape storage workload through such features as:—

- Operator panel with simple power status and fault condition indicators.
- Channel switches and indicators for each of the eight channels for each 5481 control unit.
- Operator panels for each drive unit with large, easy to read display of mount messages, drive status, and fault conditions.
- Conveniently positioned control buttons and simple front loading operation.
- Two models of automatic cartridge loaders available as options to make operating even easier and more productive.

Automatic cartridge loaders

An automatic cartridge loader (ACL) automatically loads the next cartridge in its input hopper into the transport and automatically unloads a cartridge from the transport into its stacker. Two models of ACL are available as optional attachments to the 5480 cartridge tape transport.



- The 5483 ACL, with a hopper/stacker capacity of six cartridges.
- The 5485 ACL, with a hopper/stacker capacity of 24 cartridges.

Both models fit neatly onto the 5480 drive units without impeding the operator's view of the display panel. They can be used in three modes; manual, automatic, or system:—

- Manual mode allows the operator to operate the drive by inserting and removing cartridges manually.
- Automatic mode allows the ACL to insert and remove cartridges automatically when requested by the operator.
- System mode allows the ACL to insert and remove cartridges when requested by the host operating system.



The use of ACLs can reduce both the amount of operator activity and the time jobs have to wait for tapes before they can proceed, thus giving significant productivity gains. In particular, large-scale disk to tape, or tape to disk copying operations can be carried out automatically, without operator intervention, and with considerable savings in elapsed time.

Special packaging feature

The SP2 feature makes it possible to install two complete 5480 cartridge tape subsystems in the same floor area

needed for one. This is achieved by stacking the entire second subsystem, or "string", on top of the first. With centrally positioned operator control panels, operator access to the two strings is greatly improved, saving operator time and energy.

The SP2 feature is field installable and is available as two options, the SP2-4 and the SP2-8:—

- The SP2-4 configuration includes two 5481 control units, each attached to two 5480 cartridge tape drive units.
- The SP2-8 configuration includes two 5481 control units, each attached to four 5480 cartridge tape drive units.



Ease of maintenance

A full range of diagnostics is available to identify problems down to the level of field replaceable units.

- On-line test programs initiated from the CPU exercise the 5480 subsystem in all its functions.
- Off-line controller diagnostics executed by the microprocessors in the 5481 control unit are initiated by a field maintenance device.
- Microprocessor-based diagnostics resident in each 5480 drive unit continuously monitor or exercise read/write circuitry and tape transport control and servo-mechanisms.

Cartridge media and accessories supplier

Memorex Telex has already supplied a large quantity of 3480 compatible cartridges as well as the storage racks, transportation carts, and carrying trays needed to build up an efficient cartridge library.

In many cases, the user invests as much in media supplies as in the equipment itself.

Memorex Telex, with over 25 years' experience in the development and manufacture of media and supplies can provide the expertise and breadth of product range needed to put together the complete solution to the user's cartridge tape storage needs.

High speed search/rewind

System throughput can be substantially improved through the use of this feature. In search and rewind operations, the tape movement speed is increased by over 30%, substantially reducing the overhead associated with these activities. A cartridge tape can be fully wound or rewound in 32 seconds.

Even more performance

A combination of high-speed search/rewind, data compression, and the 4.5 megabytes per second channel speed features give the 5480 cartridge tape subsystem a substantial increase in subsystem throughput combined with an appreciable improvement in both channel usage and overall system efficiency.

5480 cartridge tape subsystem highlights

- Full IBM 3480 compatibility.
- Up to 4.5 megabytes per second transfer rate.
- Advanced technology 18-track thin film head.
- High performance control unit with dual microprocessors accessing a high-speed buffer with full optimization to give fully concurrent I/O operations, balancing channel performance with drive performance.
- Higher channel connectivity.
- Data compaction feature.
- Automatic cartridge loaders.
- High speed search/rewind.
- Easy manual loading of cartridge tapes.
- Efficient use of floor space with SP2 feature.
- A complete line of media supplies from one supplier, Memorex.
- Tape position gauge – giving a visual display to the operator on how far the tape has been wound forward.

Automatic tape libraries

The 5480 cartridge tape subsystem, and the control units and cartridge tape drives used in the Memorex Telex 5400 automatic tape library, use identical components and are fully compatible with each other.

The total solution

Memorex Telex 5480 cartridge tape subsystems represent a major step forward in magnetic tape technology. Building on the enviable reputation and qualities of Memorex Telex reel-to-reel tape systems, the 5480 subsystem addresses the key user needs of:-

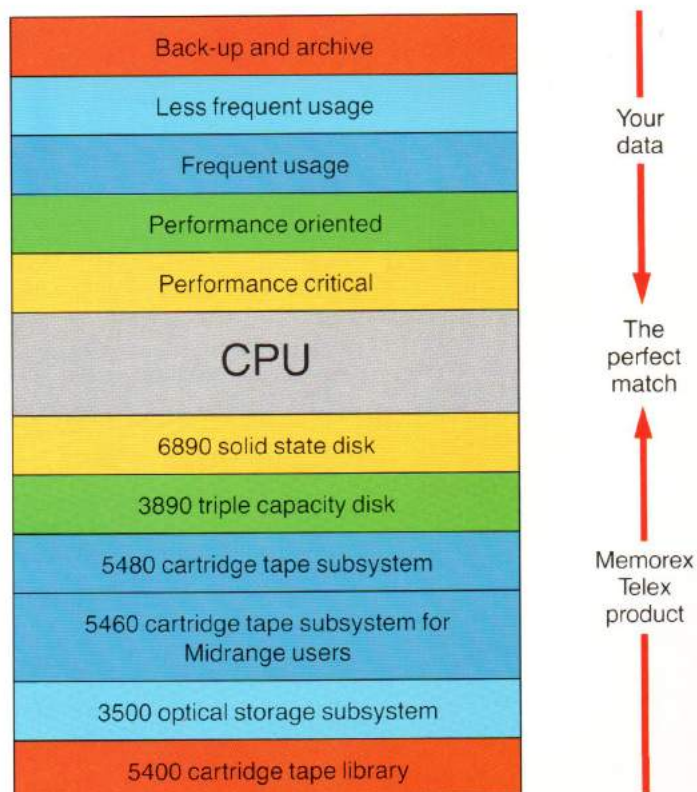
- Higher performance.
- Improved reliability and data integrity.
- Easier operations.
- Reduced environmental demands.
- Ease of maintenance.

Coupled with Memorex Telex's experience as a media supplier and breadth and depth of technical support, the 5480 cartridge tape subsystem represents the best choice for users moving from reel-to-reel tape to cartridge tape systems.

The perfect match

Within any computer installation, the data has differing priorities, performance requirements and storage capacity needs. To achieve maximum benefits the data must be held on storage devices with characteristics to match these differing priorities. It should be stored and accessed according to one of the following basic categories:-

- Performance critical data – Data which is critical to system operation and business goals.
- Performance oriented data – Data which improves the productivity levels of people and/or machines.
- Frequently used data.
- Less frequently used data.
- Back-up data.
- Archived data.



The unique range of Memorex Telex storage devices can be matched to your data to achieve the optimum combination of speed of access and efficient use of cost effective storage space. In addition to the quality of our products we have the expertise to help you achieve the maximum benefits from your data storage devices.

MEMOREX TELEX – THE SPECIALISTS IN
SEQUENTIAL SOLUTIONS

Memorex Telex 5480 cartridge tape subsystem specifications

Operational	• Speed:	79 ips	
	• Density:	37871 bpi	
	• Recording method:	AXP	
	• Data transfer rate:	up to 4.5 Mb/sec	
	• IBG length:	2 mm (.08 in)	
	• Rewind time:	48/32 (with velocity options)	
	• Load/unload time:	7 seconds	
Dimensions		5480 drive unit	5481 control unit
	• Height:	1000 mm (39.4 in)	1000 mm (39.4 in)
	• Width:	520 mm (20.5 in)	950 mm (37.4 in)
	• Depth:	750 mm (29.5 in)	750 mm (29.5 in)
	• Weight:	201 kg (442 lbs)	250 kg (551 lbs)
Power requirements	• 220 – 240 or 380 – 415 volts 3 phase		
	• Nominal power rating	5480 1.2 KVA 5481 1.6 KVA	
Power consumption	• Average per drive (for 1 x 8 system)	.57 KW	
Heat dissipation	• Average per drive (for 1 x 8 system)	600 Kcal/hr 2380 Btu/hr	
Operating environment	• Temperature	5°C to 40°C (40°F to 104°F)	
	• Altitude	0 to 3000 m (0 to 10000 ft)	

Memorex Telex 5480 SP2 special packaging feature specifications

Configurations	• Model:	SP2-4	SP2-8
	• Description:	2 x 5481 4 x 5480	2 x 5481 8 x 5480
	• Length:	2.038 m (80.25 in)	3.137 m (123.5 in)
User information	• Height of upper display	1.435 m (56.5 in)	
	• Height of lower display	1.245 m (49 in)	
	• Highest cartridge input slot		
	– without ACL	1.778 m (70 in)	
	– with ACL	1.918 m (75.5 in)	
	• Height of upper ACL switches		
	– auto switch	1.880 m (74 in)	
	– start switch	1.842 m (72.5 in)	
Component frame dimensions		5480 frame	5481 frame
	Frame contents	2 x 5480	2 x 5481
	Maximum quantity		
	SP2-4	2	1
	SP2-8	4	1
	Height	1.956 m (77 in)	1.956 m (77 in)
	Width	0.546 m (21.5 in)	0.953 m (37.5 in)
	Depth	0.750 m (29.5 in)	0.750 m (29.5 in)
	Weight	417 kg (914 lb)	500 kg (1102 lb)

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